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(56) Documents Cited

GB 2215988 A GB 1546831 A EP 0815775 A2

EP 0670125 A1 US 3896743 A

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Online: EPODOC, WPI, JAPIO

(54) Abstract Title
A modular desk.

(57) A modular desk includes one or more legs 16, 22 which are provided with grooves or channels 42 running along their length. Various desk components eg. desktop supports 60 or cupboard walls 32 have adaptors 62 of similar cross section to the channels, enabling them to be slidably mounted on the legs. Endpieces (46) are then attached to the top and bottom of the tubes to prevent removal of the components. Metal rods disposed within the channels 42 serve to control the positioning of the components along the leg by abutting with adaptors 62.

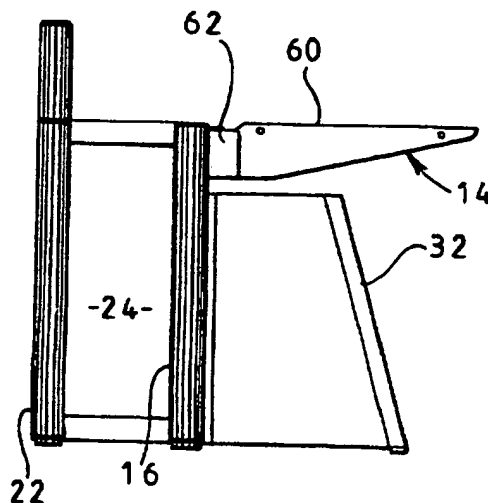


FIG 2

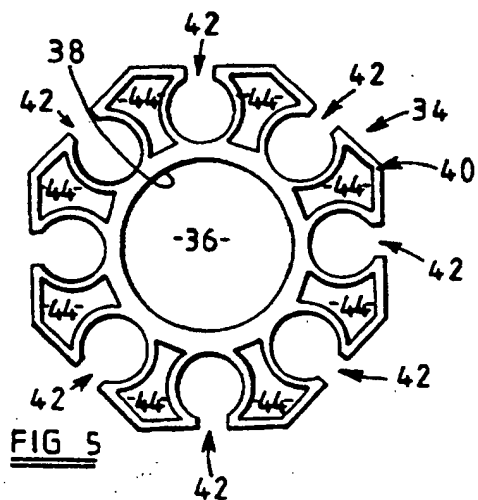


FIG 5

FIG 1

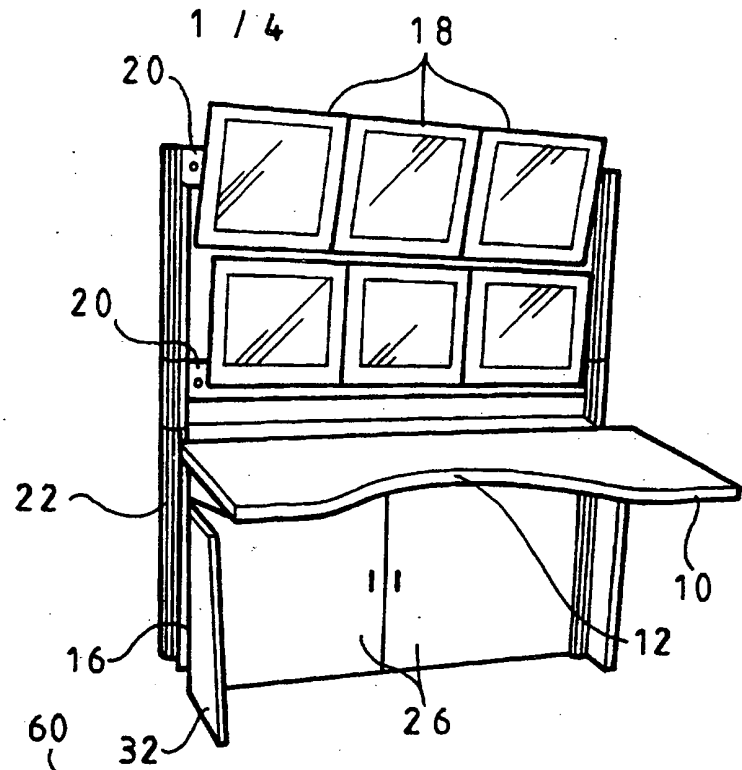


FIG 2

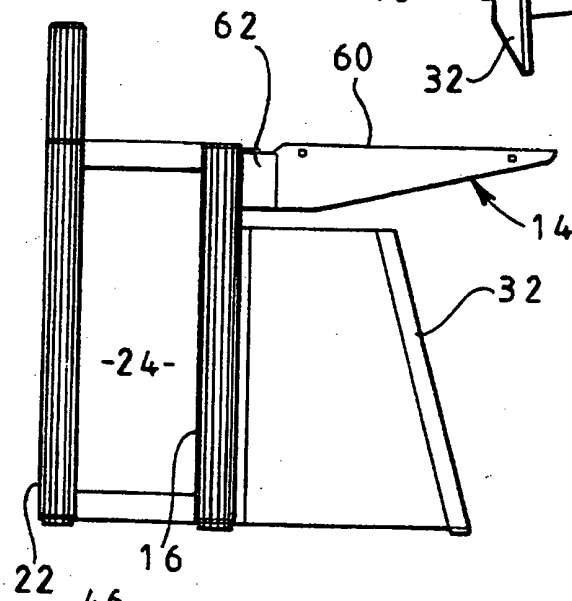
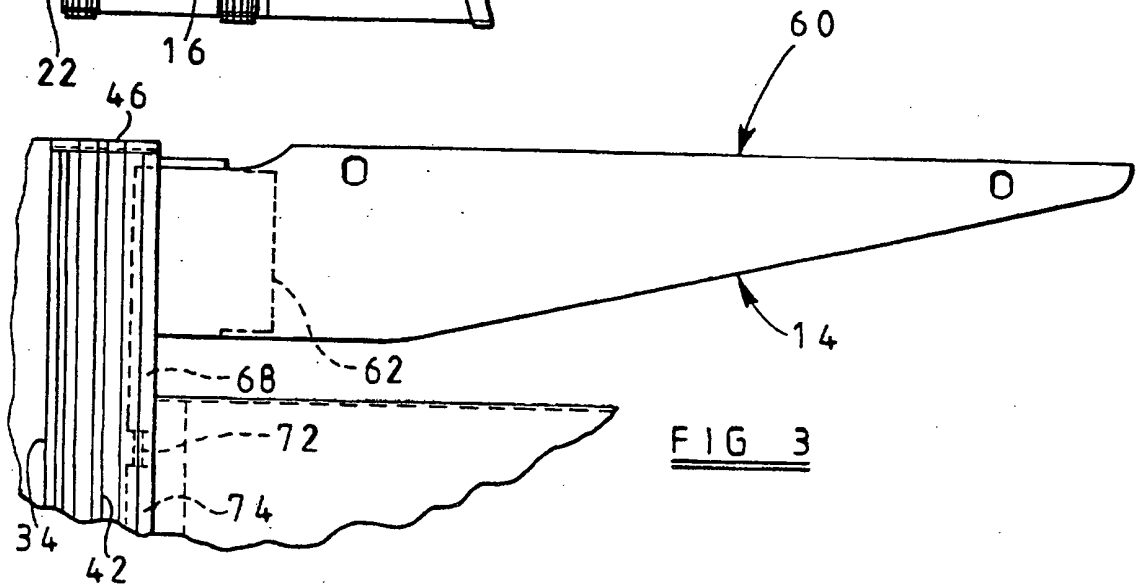


FIG 3



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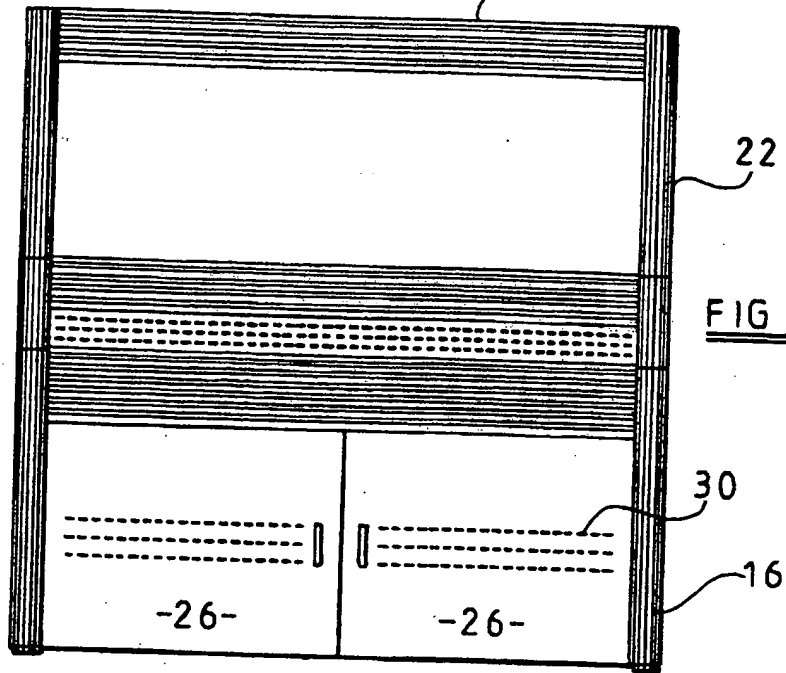


FIG 4

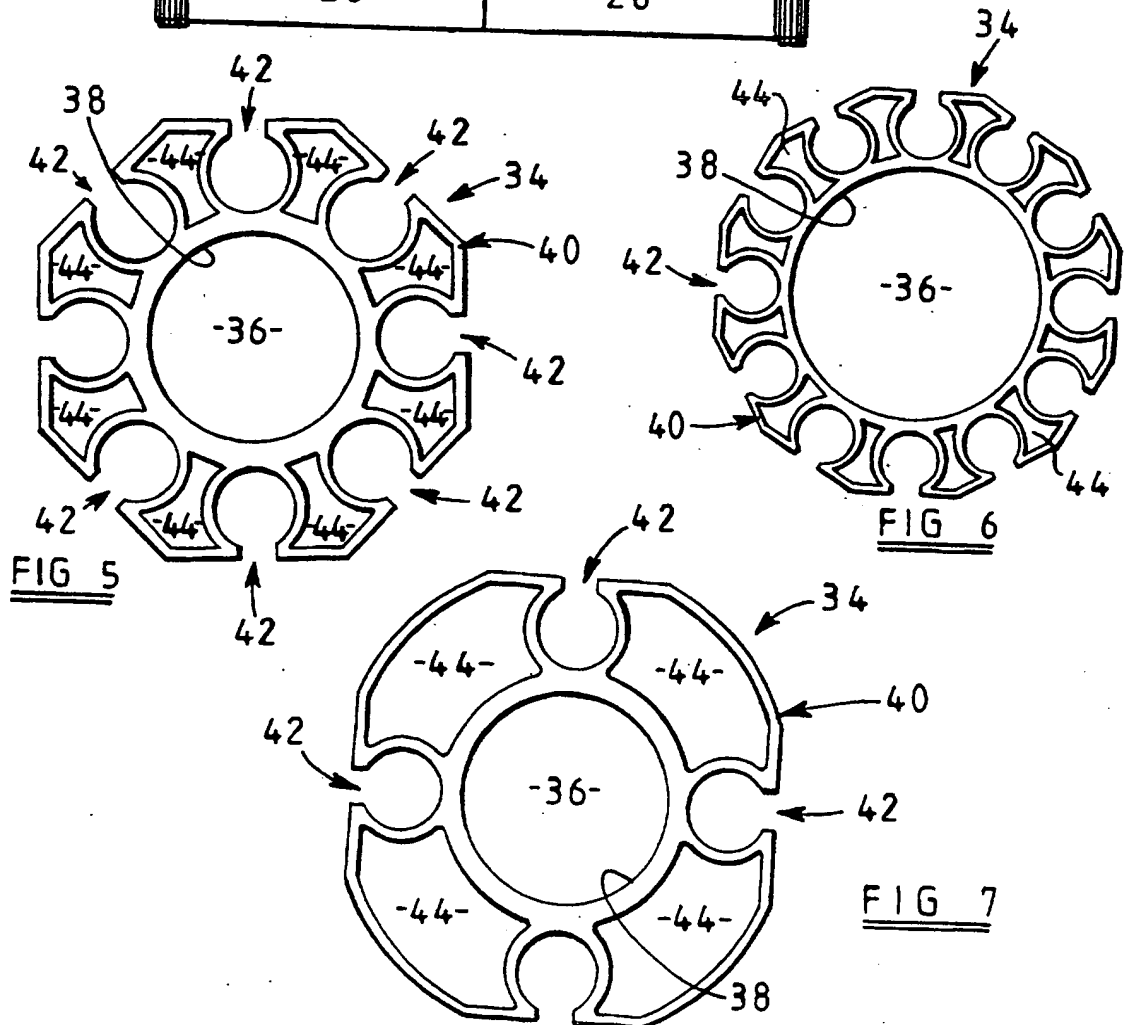


FIG 5

FIG 6

FIG 7

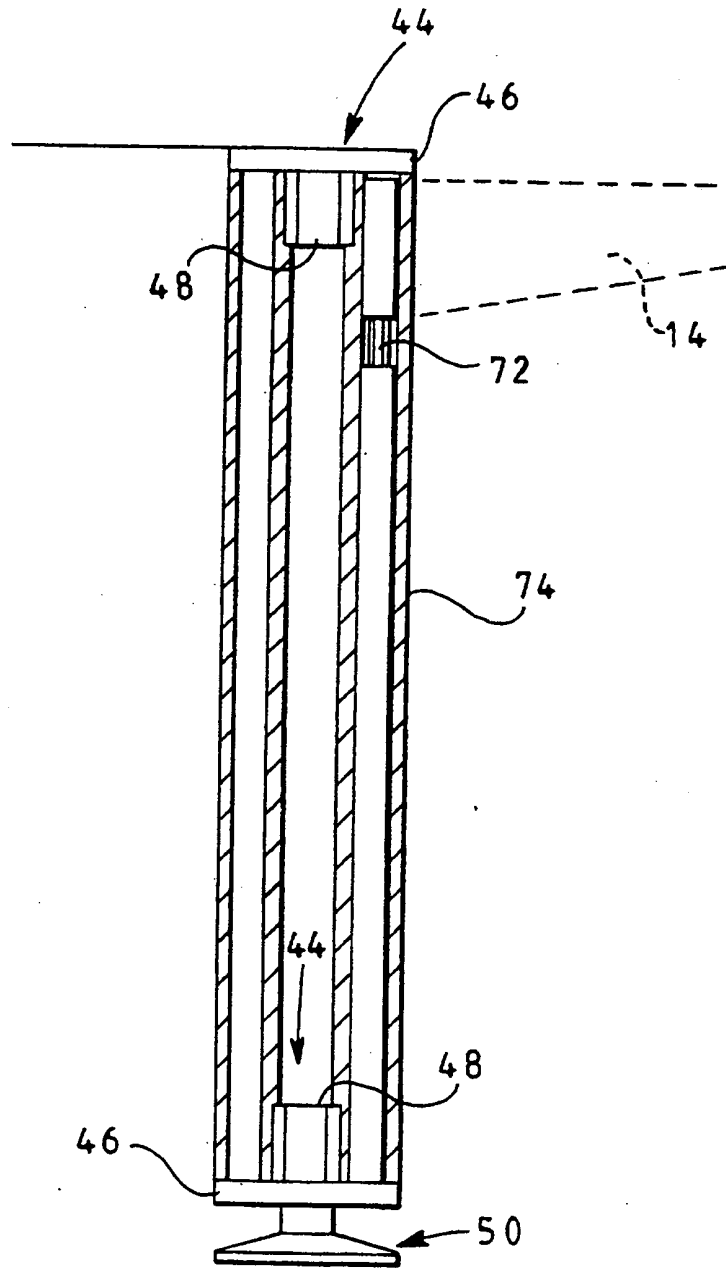


FIG 8

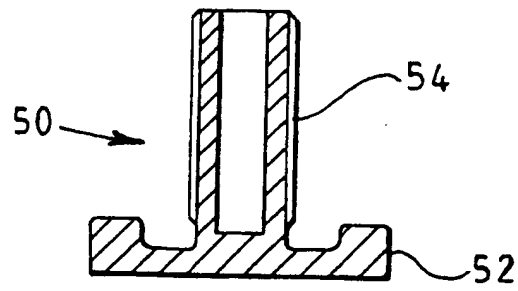


FIG 9

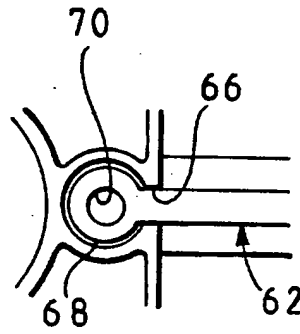


FIG 10

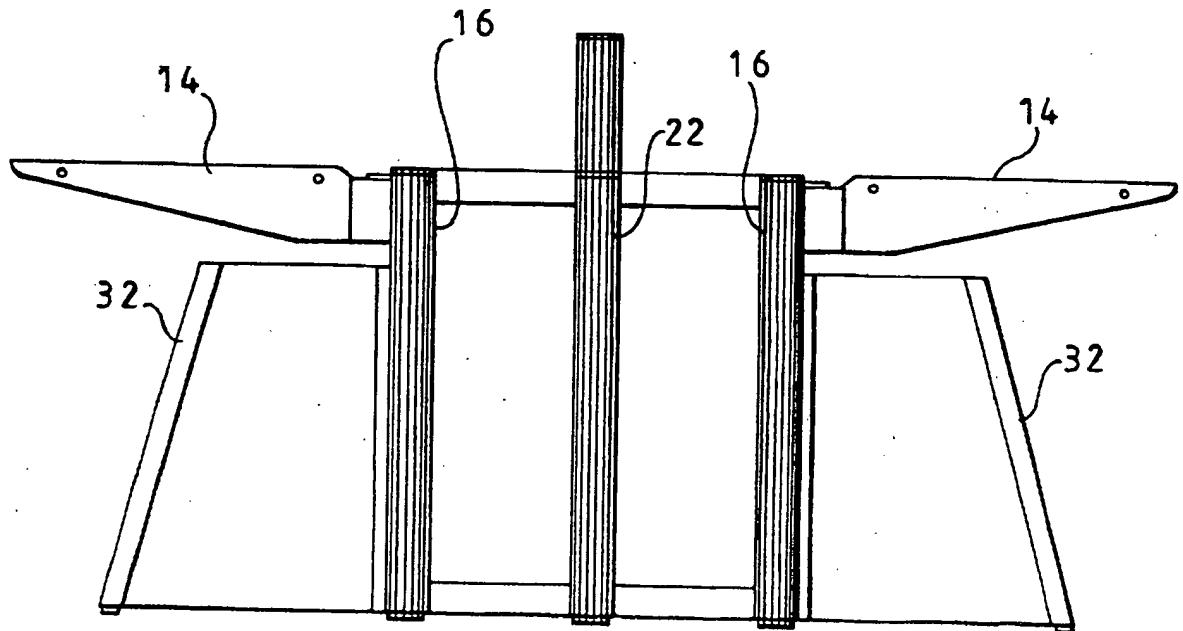


FIG 11

DESK

The present invention relates to a desk.

5 Many institutions must provide a wide variety of desks at which their employees can work. There is, therefore, a demand for a system of components from which a range of desks, each configured to its particular task, can be constructed. The range of configurations can be great,
10 extending from little more than a simple work surface, to a so-called "dealing desk" which must provide support for multiple computer displays, keyboards, telephones and so forth. Accordingly, in the context of this specification, the term "desk" is used broadly to refer to a broad range
15 of items of furniture intended to provide a work surface for a wide range of tasks.

It is known to provide a system of components from which a dealing desk can be constructed. However, these require a
20 range of tools for assembly, and are generally somewhat industrial in appearance. Furthermore, such systems do not integrate functionally or aesthetically with desking systems from which other office desks are constructed, and the desks which can be constructed may not be particularly versatile.

25

An aim of this invention is to provide a system from which a wide range of desks can be constructed with a minimum of tools, and which permits a broad range of desks to be

provided within one integrated system.

According to one aspect of the present invention there is provided a desk including one or more leg assemblies, each
5 of which includes an elongate element onto which a support component can be slideably received and coupled thereto, and a blocking member disposed in association with the elongate element to restrict sliding movement of the component on the elongate element.

10

By providing for interconnection of components with a sliding movement, assembly of a desk from component parts can readily be achieved.

15 Most typically, the elongate element is a leg or forms part of a leg assembly of the desk.

The elongate element is typically an extrusion, and most typically of metal. However, it could alternatively be made
20 from a suitable synthetic plastics material.

A wide range of components may be coupled to the leg assembly on construction of a desk. These might include, amongst other things, brackets for supporting a desktop;
25 structures for supporting equipment, for example a gantry or a rack for computer equipment; or panels, doors or covers for enclosing a space.

In a preferred arrangement, the elongate element has one or more channels extending along it. The or each channel typically has a relatively narrow opening to a surface of the element, and a relatively broader interior. In such
5 embodiments, the components carry a connecting formation which is shaped and dimensioned to slide within the channel, but which cannot pass through the narrow opening of the channel. The connecting formation may be introduced into the channel through one end of the channel in a sliding
10 manner. In such embodiments, one or more end fittings may be additionally provided on the elongate element to obstruct the or each end of the channel, thereby preventing removal of a component from the channel.

15 In embodiments according to the last-preceding paragraph, the blocking member may be a body, or one of several bodies, introduced into the channel. Provided that such a body is sufficiently large, the component will be prevented from sliding past it along the elongate element. As an example,
20 the blocking member may be an elongate rod, for example a metal rod. Preferably, at least one blocking member or component carries adjustment means in order that the position of a component can be adjusted with respect to the elongate element.

25

The elongate element typically has a plurality of channels, most preferably spaced equi-angularly around its periphery. This permits a plurality of components performing a range

of functions to be connected to the elongate element.

Furthermore, in a desk according to the last preceding paragraph, at least one elongate element may have coupled
5 to it a component of another desk.

According to another aspect of the present invention there is provided a kit of parts for constructing a desk, the kit including an elongate element for constructing a leg
10 assembly; a support component which can be slideably received and coupled onto the elongate element; and a blocking member which can be disposed in association with the elongate element to restrict sliding movement of the component on the elongate element.

15

For a better understanding of the present invention and to show more clearly how it may be carried into effect reference will now be made, by way of example, to the accompanying drawings in which:

20

Figure 1 shows a dealer desk embodying the invention;

Figure 2 is a side view of a part of the desk of Figure 1;

25 Figure 3 is a more detailed enlarged view of a bracket component of the desk shown in Figure 2;

Figure 4 is a front view of part of the desk of Figure 1;

Figures 5 to 7 are end views of alternative leg sections for use in construction of desks embodying the invention;

Figure 8 is a sectional view of a front leg assembly being
5 part of the desk of Figure 1;

Figure 9 is a sectional view of a foot component being part of the desk of Figure 1;

10 Figure 10 shows a detail of a connection between a bracket and a leg section in the desk of Figure 1; and

Figure 11 shows a construction whereby two dealer desks can be constructed using shared components.

15

With reference to the figures, a dealer desk provides for its user a desktop 10 which has an upwardly-facing work surface upon which articles such as computer keyboards, telephones and so forth can be placed. In this embodiment,
20 the desktop is approximately rectangular in plan, and has a shallow concavity 12 in its front edge to render the work surface better accessible to a user.

The desktop 10 is supported upon a pair of support
25 components, which are in this embodiment, brackets 14, each of which is coupled to and supported in a cantilevered manner from a respective leg assembly 16. These leg assemblies 16 will be referred to as the front leg

assemblies.

To the rear of the desktop 10, and above it, there is an array of computer display units 18. The display units 18
5 are supported on a horizontal gantry member 20. The gantry member 20 extends between two parallel, spaced leg assemblies 22, which will be referred to as the rear leg assemblies. The rear leg assemblies 22 are somewhat greater in height than the front leg assemblies 16. When viewed
10 from above, the two front leg assemblies 16 and the two rear leg assemblies 22 are located at the four corners of a rectangle.

Below the level of the desktop 10, an enclosure is formed
15 between the leg assemblies 16, 22. The enclosure has two side panels 24, rectangular in shape, which extend between adjacent ones of the front and rear leg assemblies 16, 22, and a rear panel which extends between the two rear leg members 22. Upon each of the front leg members 16 there is
20 mounted a respective door 26. The doors are hinged such that they can, as a user wishes, obstruct or open access to the enclosure from below the desktop. The enclosure may typically be used to house electronic equipment. In view of this, at least some of the side panels, the rear panel
25 or the doors are provided with ventilation holes 30.

Additional equipment, such as a side screen 32 may be provided in accordance with a particular user's

requirements.

Various features of this embodiment will now be described in greater detail.

5

Each leg assembly 16, 22 is constructed around an elongate extruded metal leg section 34 which has a uniform cross-section along a long axis. In a complete desk, the long axis is generally vertical (assuming, that is, that the desk is supported on a horizontal substructure). Various alternative cross-sectional shapes of the leg section are shown in Figures 5, 6 and 7. In each case, the leg section 34 has a hollow central core 36 of circular cross-section. The core 36 lies within a central, substantially cylindrical portion 38 of the leg section 34. Projections 40 extend outwardly from the cylindrical portion 38, the projections 40 being regularly spaced around the central portion 38. A void 44 may be formed within each of the projections in order to reduce the quantity of metal in and the weight of the leg section 34. End regions of the core are tapped with an internal screw thread.

The projections 40 are shaped such that a channel 42 is defined between each pair of adjacent projections 40. Each of the channels 42 is of similar cross-section, substantially uniform along the length of the leg section 34. Each of the channels has a slot opening which extends the length of the leg section 34, the slot being open

outwardly of the leg section 34 and communicating inwardly of the leg section with a comparatively broad region of the channel 42. In this embodiment, each channel 42 is generally circular in cross section, the slot extending 5 radially with respect thereto.

As will be seen from a comparison of Figures 5, 6 and 7, the number of projections (and therefore the number of slots) can be varied from one embodiment to another without 10 changing the underlying principle of construction of the leg section 34.

The construction of the leg assemblies 16, 22 of this embodiment will now be described in detail with reference, 15 in particular, to Figures 3, 8 and 9.

Each leg assembly 16, 22 includes one-piece upper and lower end plugs 44. Each end plug 44 includes a flange 46. The flange 46 may have a peripheral shape similar to the 20 peripheral shape of the leg section 34, or may be circular having a diameter substantially equal to the greatest diameter of the leg section 34. A plug body 48 which has a circular outer cross section and which is externally threaded projects centrally from the flange 46. Extending 25 centrally through the flange 46 into the plug body 48 there is a tapped bore. The thread on the plug body 48 is formed such that the plug body 48 can be screwed into the threaded end portion of the core 36 of the leg section 34, such that

the flange 46 abuts an end surface of the leg section 34, thereby closing off ends of the channels 42. Each of the upper and lower ends of the leg section 34 is provided with a respective end plug 44.

5

The front leg assembly further comprises a foot component 50, as shown in Figure 9. In the illustrated example, the foot component 50 is formed as a one-piece casting having a head portion 52 and a shank 54, and being rotationally
10 symmetrical about an axis. The head portion 52 has a flat supporting surface 56 normal to the axis, which surface, in normal use, faces downwardly, in contact with a substructure such as a floor. The shank 54 is formed as a hollow cylinder, and has an external thread formed on its outer
15 surface, the thread being so formed that the shank can be screwed into the tapped bore of the lower end plug 44. The foot component 50 thereby provides a firm support for the leg assembly 16, 22 on a supporting substructure. The height at which the leg assembly 16, 22 is supported can be
20 adjusted by screwing the foot component 50 into or out of the end plug 44.

Each of the front leg assemblies 16 further includes a bracket 14. The bracket 14 has a supporting section 60
25 which is typically formed of metal (aluminium, for example) in a U-section. The supporting section 60 has a flat upper supporting surface upon which the desktop 10 is carried. A coupling component 62 is secured to the supporting section

60 (for example, by welding or riveting) such that a portion of the coupling component 62 projects from the supporting portion 60. Optionally, the bracket may further comprise adjustment means operable to vary an angular alignment
5 between the coupling component 62 and the supporting section 60. Such adjustment means can be operated to adjust an orientation of the supporting portion 60 with respect to the leg assembly 16, and thereby adjust the angle of the desktop 10 with respect to horizontal.

10

The projecting portion of the coupling component 62 has, nearest the supporting portion 60, a flat web 66 (seen in section in Figure 10) and a bulbous outer section 68. The web 66 is of a thickness slightly less than the width of the
15 slots in the leg sections 34. The bulbous outer section 68 is shaped and dimensioned to be a close sliding fit within the comparatively broad region of the channels 42 of the leg sections 34. This arrangement permits the projecting portion of the coupling component 62 to enter at an end of
20 a channel 42 in the leg section 34 and to slide along the channel 42. However, the bulbous outer section 68 cannot pass through the slot, so the projecting portion of the coupling component 62 is captive within the channel 42, with the consequence that the bracket 14 is thereby coupled to
25 the leg section. A tapped bore 70 is formed in the bulbous outer section, and a grub screw 72 is located within the tapped bore 70 to partially project from it in a downward direction when the bracket 14 is in normal use.

A metal rod 74, circular in section and of diameter greater than the width of the slots in the leg sections 34, is provided within one of the slots 34. The metal rod 74 is supported by the flange 46 of the lower end plug 44. Downward movement of the coupling component 62 of the bracket 14 (and therefore of the bracket 14 as a whole) is restricted by the grub screw 72 coming into contact with an upper end surface of the rod 74. By adjusting the amount by which the grub screw projects from the bore 70, the height of the bracket 14 and of the desktop 10 supported on it can be controlled.

The flange 46 of the upper end plug 44 prevents upward removal of the coupling component 62 from the leg section 34.

It will be readily understood that many other components can be secured to the leg section 34 in a like manner by means of suitably adapted coupling components. For example, each of the doors 26 can be carried on hinges, each hinge having a leaf of similar shape as the coupling component 62 described above. The side panels 24 are also similarly connected with leg sections 34 of the front and rear leg assemblies 16, 22 to form a rigid assembly.

Each rear leg assembly 22 extends upwardly above the level of the desktop 10. In one alternative arrangement the

entire leg assembly can be constructed around a single length of leg section 34. Alternatively, two or more lengths of section, all of similar profile, may be interconnected by suitable connection components.

5

The horizontally-extending gantry member 20 extends between the rear leg assemblies 22. The gantry member 20 is provided with coupling components with which it is secured to the leg sections 34 of the rear leg assemblies 22 close
10 to their upper ends. As with the brackets 14, the gantry member 20 is supported at a suitable height by means of a metal rod inserted into the corresponding channel 42 of each of the leg sections 34.

15 A simple desk can be constructed using four leg assemblies all of the same height below the level of the desktop 10. Such a simple desk has many components in common with the dealer desk described above, with the advantage to the end-user that a wide range of desks can have a uniform
20 appearance, and with the advantage to the installer that a smaller stock of components is required than would be the case with a conventional system. Furthermore, the system by means of which components are coupled together requires use of only a minimum of tools during assembly of a desk.

25

A further feature of the system will become apparent from Figure 11. One or more leg assemblies can be shared between more than one desk. In the example shown in Figure 11, rear

leg assemblies 22 are shared between two dealing desks back-to-back. By selecting leg sections 34 which have a suitable numbers of channels 42, many other arrangements are possible. For example, desks can be arranged in a polygonal
5 arrangement. Furthermore, components can be shared between desks of very different construction. A dealer desk can readily share a leg assembly with a very simple desk, having little more than a simple desktop 10.

CLAIMS

1. A desk including one or more leg assemblies, each of which includes an elongate element onto which a support
5 component can be slideably received and coupled thereto, and a blocking member disposed in association with the elongate element to restrict sliding movement of the component on the elongate element.
- 10 2. A desk as claimed in claim 1, wherein the elongate element is an extrusion.
3. A desk as claimed in claim 2, wherein the elongate element is of metal.
- 15 4. A desk as claimed in claim 2, wherein the elongate element is of synthetic plastics material.
5. A desk as claimed in any preceding claim, wherein the
20 elongate element has one or more channels extending along it.
6. A desk as claimed in claim 5, wherein the or each channel has a relatively narrow opening to a surface of the
25 element, and a relatively broader interior.
7. A desk as claimed in claim 5 or 6, wherein one or more end fittings are provided on the elongate element to

obstruct the or each end of the channel, for preventing removal of a component from the channel.

8. A desk as claimed in claim 7, wherein the blocking
5 member comprises one or more bodies introduced into the channel.

9. A desk as claimed in claim 8, wherein the or each body comprises an elongate rod.

10

10. A desk as claimed in claim 9, wherein the rod is of metal.

11. A desk as claimed in any one of claims 7 to 10, wherein
15 at least one blocking member carries adjustment means in order that the position of a component can be adjusted with respect to the elongate element.

12. A desk as claimed in any one of claims 5 to 11, wherein
20 the elongate element has a plurality of channels.

13. A desk as claimed in claim 12, wherein the channels are spaced equi-angularly around the periphery of the elongate element.

25

14. A desk substantially as hereinbefore described with reference to, and as shown in, the accompanying drawings.

15. A combination of a desk as claimed in any preceding claim and at least one component slideably received onto the elongate element and coupled thereto.

5 16. A combination as claimed in claim 15 when dependent on claim or any claim dependent thereon, wherein the or each component carries a connecting formation which is shaped and dimensioned to slide within the channel.

10 17. A combination as claimed in claim 16 when dependent on claim 6 or any claim dependent thereon, wherein the connecting formation is shaped and dimensioned such that it cannot pass through the relatively narrow opening of the channel.

15

18. A combination as claimed in any one of claims 15 to 17, wherein the at least one component carries adjustment means in order that the position of the component can be adjusted with respect to the elongate element.

20

19. A combination as claimed in claim 15 and substantially as hereinbefore described with reference to, and as shown in, the accompanying drawings.

25 20. A kit of parts for constructing a desk, the kit including an elongate element for constructing a leg assembly; a support component which can be slideably received and coupled onto the elongate element; and a

blocking member which can be disposed in association with the elongate element to restrict sliding movement of the component on the elongate element.



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Claims searched: All

Examiner: Richard Gregson
Date of search: 24 May 2000

Patents Act 1977 Search Report under Section 17

Databases searched:

UK Patent Office collections, including GB, EP, WO & US patent specifications, in:
UK Cl (Ed.R): A4L (LSA, LSB, LSD, LSG, LSX), A4B
Int Cl (Ed.7): A47B (13/00, 13/02, 17/00, 17/02, 21/00, 21/02, 47/00, 47/03, 47/05, 57/10, 57/34, 87/00, 96/14)
Other: Online: EPODOC, WPI, JAPIO.

Documents considered to be relevant:

Category	Identity of document and relevant passage	Relevant to claims
X	GB 2215988 A (CRAVEN) - see diagrams in particular	1
X	GB 1546831 A (CAIRNES-MALTBY) - see diagrams in particular.	1,3
Y	EP 0815775 A2 (FRASCAROLI) - see diagrams in particular	1,5,6,7,12,13 (8-10), combined with 6
X	EP 0670125 A1 (CASTELLI) - see diagrams in particular	1,2,3
Y	US 3896743 A (PARIENTI) - see diagrams in particular.	8,9,10
Y	WPI Abstract, Acc. No. 1997-043891 & DE 19522037 A1: (MATHIAS) - see diagram in particular.	1,2,3,5,6,7,12,13 (8-10), combined with 6

X	Document indicating lack of novelty or inventive step	A	Document indicating technological background and/or state of the art.
Y	Document indicating lack of inventive step if combined with one or more other documents of same category.	P	Document published on or after the declared priority date but before the filing date of this invention.
&	Member of the same patent family	E	Patent document published on or after, but with priority date earlier than, the filing date of this application.

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